

Notice of Allowability

Application No.

09/330,593

Examiner

Anne Marie Grunberg

Applicant(s)

POLONENKO ET AL.

Art Unit

1661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed 3/10/04.
2. ☒ The allowed claim(s) is/are 5-7, 10-14, 17, 19-20, 22-38, 41-43, 45-49, 53, 56 (renumbered as 1-38).
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>3/10/04 + others</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

A Request for Continued Examination was received 03/15/2004. The IDSs filed 3/10/2004, 4/8/04 and 7/14/04 have been received. A discussion of the prior art cited as it regards the claims follows.

Reasons for Allowance

The claimed invention is novel and not obvious over the prior art on several points. First of all, the claims are drawn to gymnosperms. At the time the invention was made there was substantial unpredictability in tissue culture processes with limited or no expectation of success between model systems and other plants (Fujii et al., 1987, page 335, column 3). The fact that the somatic embryo of claim 1 is not encapsulated distinguishes it over artificial seeds (Fujii et al., 1987). Additionally, the claimed embryos are sown *ex vitro* on a non-sterile medium. Nor do the claims read on fluid drilling because in fluid drilling somatic embryos are not “naked” or uncoated because in fluid drilling they are suspended in a viscous fluid and are presprouted. Another distinction over the prior art is the claimed somatic embryos are not pregerminated, rather the claims are directed to a process of germination. Lastly, the difference over the prior art is the fact that a nutrient carbohydrate solution is applied in the claimed invention, at least during germination.

Discussion of Fujii et al, 1987: Fujii et al, 1987 teach the use of artificial seeds and not unencapsulated gymnosperm somatic embryos. Fujii et al do discuss non-coated embryos, however only in the context of grape and orchard grass, neither of which are gymnosperms.

Art Unit: 1661

Nowhere do they teach or suggest gymnosperms (see Fig. 2 and Table 2 for example). They also do not teach gymnosperm somatic embryos nor do they teach a nutrient solution applied during germination. The artificial seed was germinated *in vitro* and in a sterile environment. No suggestion is made to germinate unencapsulated gymnosperm somatic embryos *ex vitro* on a non-sterile medium wherein a nutrient solution is applied at least during germination.

Discussion of Fujii et al, 1990: Fujii et al, 1990 teach alfalfa, not gymnosperms. Additionally, they teach artificial seeds, i.e. encapsulated embryos (page 93, column 1, 1st paragraph, last sentence). Although there may have been unencapsulated alfalfa somatic embryos grown on a non-sterile medium, this is unclear because at page 93, last sentence in the first paragraph, they state, "...but we have focused on using a hydrated gel capsule composed of alginate to encapsulate single hydrated somatic embryos." The focus of the research was on the effects of ABA on conversion rates and vigor. No suggestion is made to apply a nutrient solution during germination and no comparisons to unencapsulated controls were made. No suggestion is made to germinate unencapsulated gymnosperm somatic embryos *ex vitro* on a non-sterile medium wherein a nutrient solution is applied at least during germination.

Discussion of Fujii et al, 1992: Fujii et al, 1992 teach alfalfa, not gymnosperms. Although they do teach unencapsulated embryos, these embryos require a pregermination step in sterile conditions, not required by the instant claims. This art also points out how many years went into making the alfalfa system work. This reinforces the point that technology is not simply transferred from one system such as exists for alfalfa to a system using gymnosperms. Finally, there is no indication of a carbohydrate nutrient solution. No suggestion is made to

Art Unit: 1661

germinate unencapsulated gymnosperm somatic embryos *ex vitro* on a non-sterile medium wherein a nutrient solution is applied at least during germination.

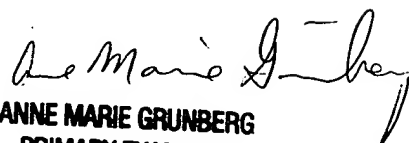
For these reasons, the Examiner deems that the cited prior art does not teach or reasonably suggest the claimed invention.

The double patenting rejections were not maintained because U.S. patents 6,444,467 and 6,689,609 are each drawn to pre-germinated gymnosperm somatic embryos that are subsequently sown *ex vitro* whereas the instant claims are drawn to germinating a somatic embryo *ex vitro*.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne Marie Grünberg whose telephone number is (571) 272-0975. The examiner can normally be reached from Monday through Thursday from 7:30 until 5:00, and every other Friday from 7:30 until 4:00.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached at (571) 272-0811. The fax number for the unit is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.


ANNE MARIE GRUNBERG
PRIMARY EXAMINER